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| **Reported by (Name):** | **Geoffrey S. Ibbott, Ph.D.** |
| **Organization:**  | **International Electrotechnical Commission** |
| **Position Title:** | **Convenor, Working Group 1 of Subcommittee 62C** |
| **Activity:** | **Meeting of Working Party for IEC 62083** |
| **Meeting Dates:** | **18-20 June, 2019** |
| **Meeting Location:** | **Elekta Headquarters, Stockholm, Sweden** |
| **Payment $:** | **None** |
| **Reasons for Attending or not Attending** | **Attended as Convenor of Working Group 1** |
| **Issues from Previous Meetings or Year:** | **Comment were received from National Committees on Committee Draft of new edition of IEC 62083.** |
| **General Description of Activities of the Organization and/or Meeting:** | **Purpose was to review NC comments and prepare revisions for the next draft of a new edition of IEC 62083** |
| **Issues for AAPM:** | **This standard describes safety aspects of treatment planning systems. Manufacturers and clinical personnel often disagree over the need for and importance of certain safety features.** |
| **Budget Request ($):** | **Included in budget.** |

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**INTERNATIONAL ELECTROTECHNICAL COMMISSION**

**Report of Meeting of Working Group 1, Working Party for IEC 62083**

**June 18th to 20th 2019 in Stockholm, Sweden**

**Meeting venue:**

Elekta Headquarters

Kungstensgatan 18

Stockholm, Sweden

**Begin**: 2019-06-18, 09.00

**End:** 2019-06-20, 17.00

***Opening of Meeting***

The meeting of the working party opened at 09.00 on 18 June 2019. The Convenor wishes to thank Elekta for providing the meeting space and for providing drinks and snacks for the morning and afternoon breaks. The Convenor also thanks the Japanese member for providing Japanese cookies for the coffee breaks.

***Attendance***

The following members participated on one or more of the meeting days:

John Allen (UK)

Geoffrey Ibbott, WG Convenor (USA)

Thomas Jakob (Switzerland)

Kari Jyrkkälä (Finland)

Per Kjäll (Sweden)

Michael Moyers (China/USA)

Anna Olsson (Sweden)

Hans Sethi (UK)

Kazuo (“Elvis”) Tomida (Japan)

***Topics of Discussion***

The purpose of this meeting was to address National Committee comments on the 1st Committee Draft of a 2nd edition of IEC 62083, Safety of Radiotherapy Treatment Planning Systems. Some of the comments had been reviewed at the recent meeting of Working Group 1 in March, but most comments were not addressed. A meeting of the project team was convened to address the remaining comments and make progress toward preparing a 2nd CD.

Extensive discussion was held over the concept of testing software at a user’s installation. It was recognized that while the manufacturer can test software extensively at their facility, site tests are necessary to ensure the software performs as expected on site, with the user’s hardware, network environment, and other unique features that could affect performance in unexpected ways.

Who should do testing? Agreed that type tests as well as site tests will be needed. Peripherals or components from another manufacturer are a concern. Evidence suggests institutions are not always sufficiently aware of the need for periodic testing.

Synthetic CT images need to be described in meaningful ways, to distinguish them from conventional CT and CBCT images. The dicom tag should be used. Clause 9.4.1 requires identification of the source of image data.

“Equipment model” had been defined in relation to ME equipment, but a brachytherapy source is not ME equipment. To address this, the definition of equipment model was revised to remove the reference to ME equipment. A radionuclide source model definition was added, to enable reference for low-dose rate manual brachytherapy.

A lengthy discussion was held over whether a conversion from Hounsfield Units to electron density takes place when a CT scan is imported, or when a treatment plan is calculated. Several manufacturer representatives present stated that their systems only perform the conversion at the time of dose calculation.

A discussion was held regarding imaging dose. It was agreed that this could only be addressed by defining an imaging equipment model, therefore, this was done.

A US comment suggesting addition of a requirement for the uncertainty of dose calculation was rejected, with a request that the US provide a detailed suggestion for a new clause. It was noted that the uncertainty of dose calculation (or of DVH values) needed to include more than the statistical uncertainty of a Monte Carlo calculation. Further noted that spatial accuracy needed is dependent on anatomical site.

Coordinate systems were discussed and it was affirmed that IEC 61217 must be provided, but that other coordinate systems could be used, for consistency with institutional legacy equipment. If new coordinate systems are defined, the user must have clear indications of the orientation of coordinate axes, as well as the operator’s direction of view.

How to represent preconfigured data provided by the manufacturer, and requirements for confirming the data, were discussed and included in the draft. Related to this, the ratio of dose to MU must be correctly tailored to the beam type: different for photons vs. protons, e.g. Also, source to surface distance, while understood for photons and electrons, is not clear for particles. Need to refer to equipment reference point to surface distance.

Extensive discussion was held over the meanings of the terms Treatment Plan, Treatment Plan Record, Treatment Plan Report, and Treatment Plan Export. It was agreed that while a staff member would prepare a Treatment Plan, this was a “virtual” construct. The version that could be stored in a computer’s memory (or archived in some fashion) was the Treatment Plan Record, while a version that could be printed on paper or converted to a PDF file or other permanent document, and a signature or other form of approval attached, was the Treatment Plan Report. The term Treatment Plan Export was dropped, as not being a suitable expression, but the section was retitled “Export of Treatment Plan” to enable discussion of the parameters that should be exported to a treatment delivery system.

The preparation of adapted plans would necessitate the development of additional treatment plans, Records and Reports, which would need to be related to each other. Therefore, it was agreed that all reports for a patient needed to be identified with the patient’s unique identifier, as well as an indicator of the specific plan.

Respectfully submitted,

Geoffrey Ibbott

Convenor IEC 62C/WG 1